

OBLOJ, SPIVAK, ET AL  
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INV: Katsumi KANEHIRA, et al.  
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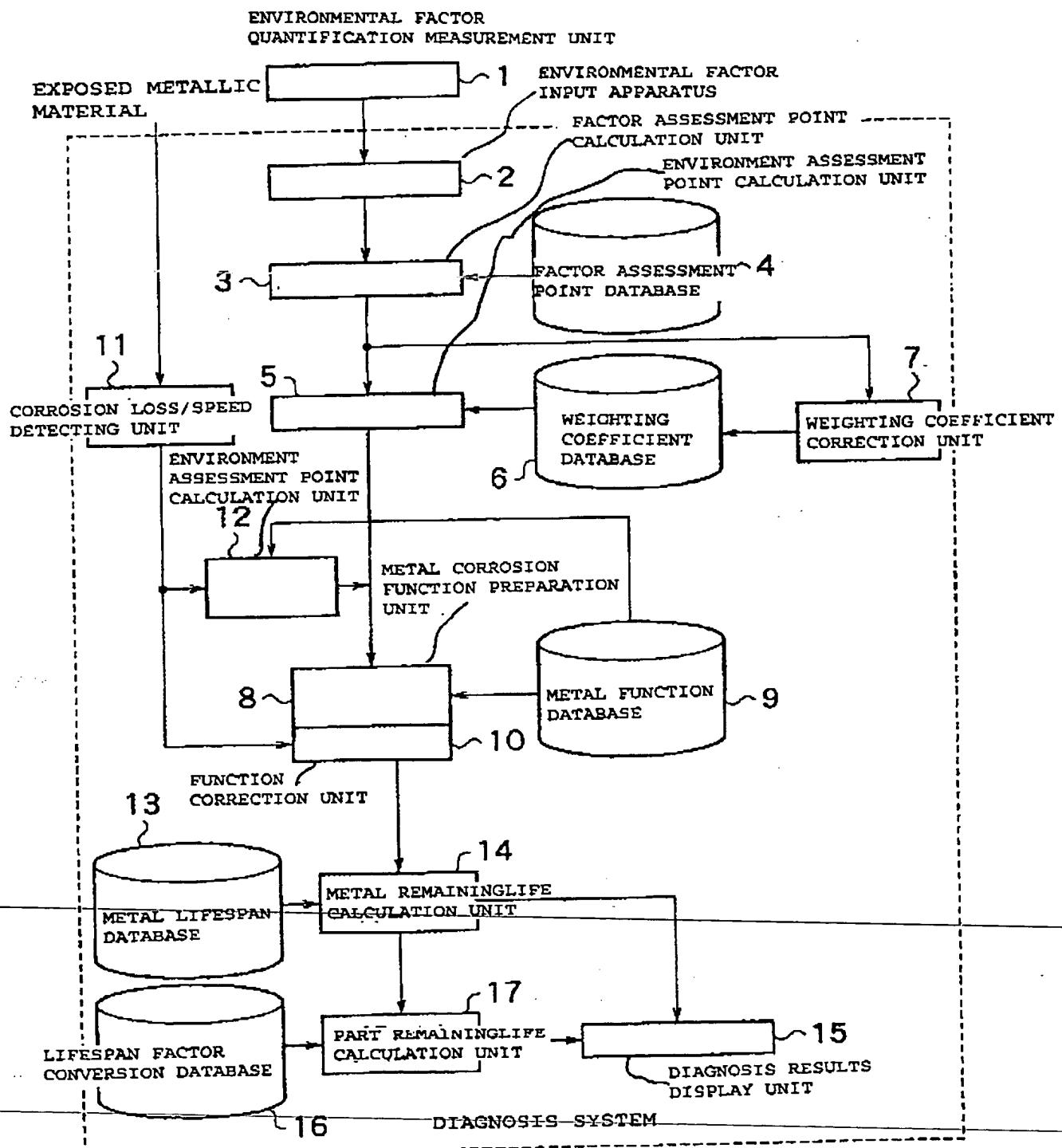


FIG. 1

Atmospheric environment zone	I	II	III	IV	V
Environmental factors	Measured value	Evaluation point	Measured value	Evaluation point	Measured value
Temperature (°C)	A $\leq 20$	1	$\leq 25$	2	$\leq 30$
Relative humidity (%RH)	B $\leq 60$	1	$\leq 65$	6	$\leq 70$
Corrosive gas (mdd)	SO <sub>2</sub> C1 $\leq 0.02$	1	$\leq 0.05$	4	$\leq 0.2$
	H <sub>2</sub> S C2 $\leq 0.02$	1	$\leq 0.05$	6	$\leq 0.2$
	NO <sub>2</sub> C3 $\leq 0.02$	1	$\leq 0.05$	3	$\leq 0.2$
	Cl <sup>-</sup> C4 $\leq 0.02$	1	$\leq 0.05$	7	$\leq 0.2$
	NH <sub>3</sub> C5 $\leq 0.02$	1	$\leq 0.1$	3	$\leq 1.0$
Sea salt particle (mdd)	Sea salt particle (mdd) D $> 2.0$		$\leq 0.03$	5	$\leq 0.1$
Distance from coast (km)			$\geq 1.5$		$\geq 1.0$

FIG.2

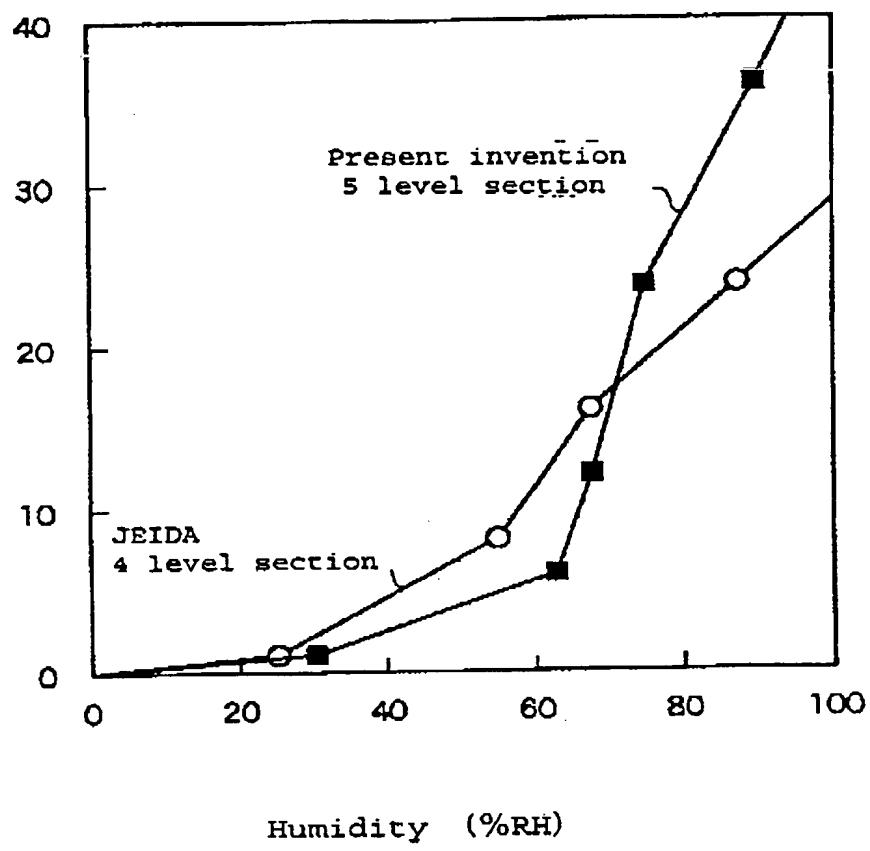


FIG. 3

JEIDA-29-1990 Dividing into four stage classes

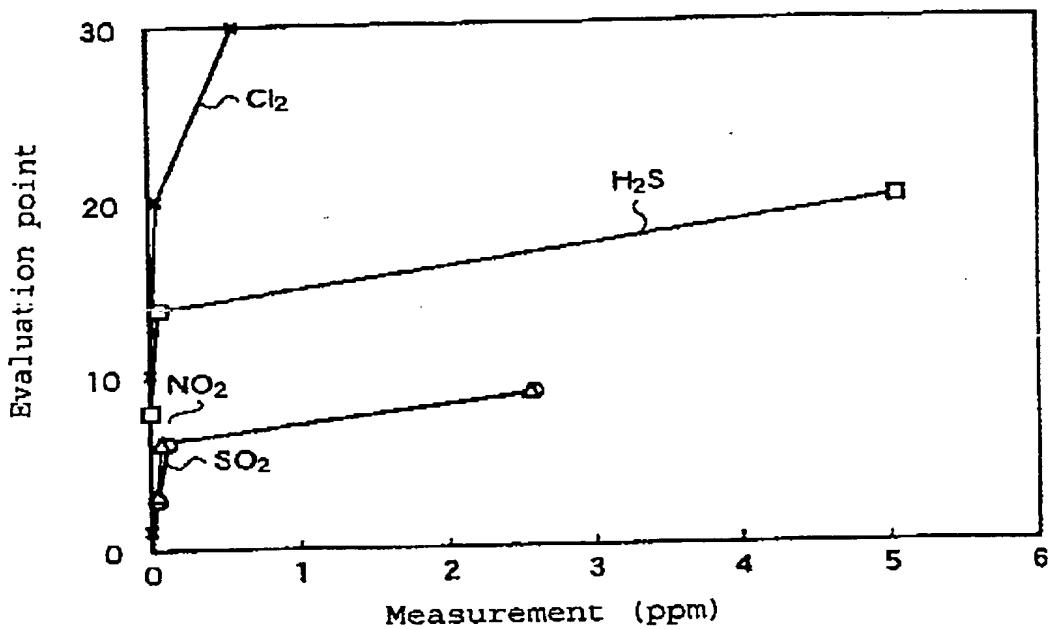


FIG. 4 A

Present invention Dividing into five point classes

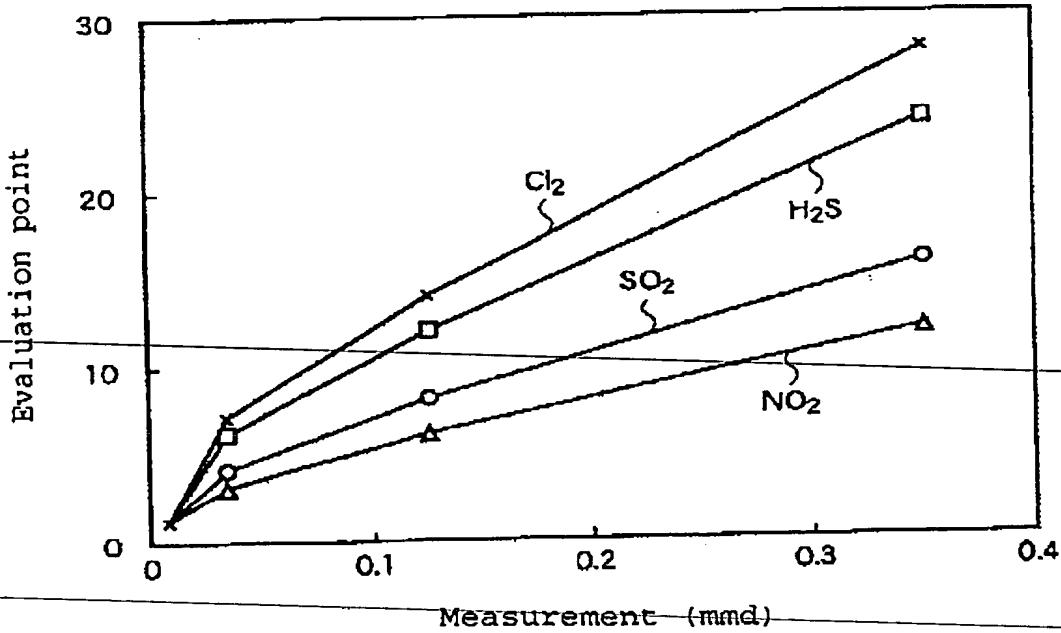


FIG. 4 B

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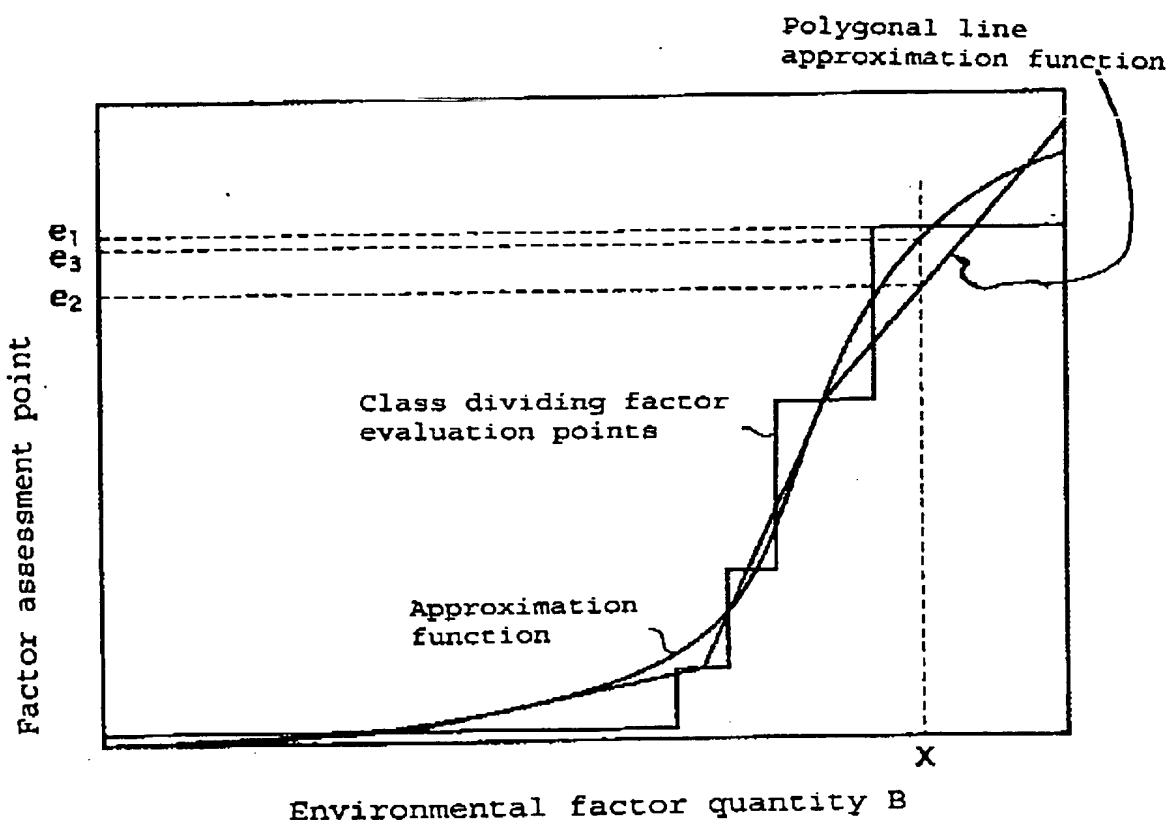


FIG. 5

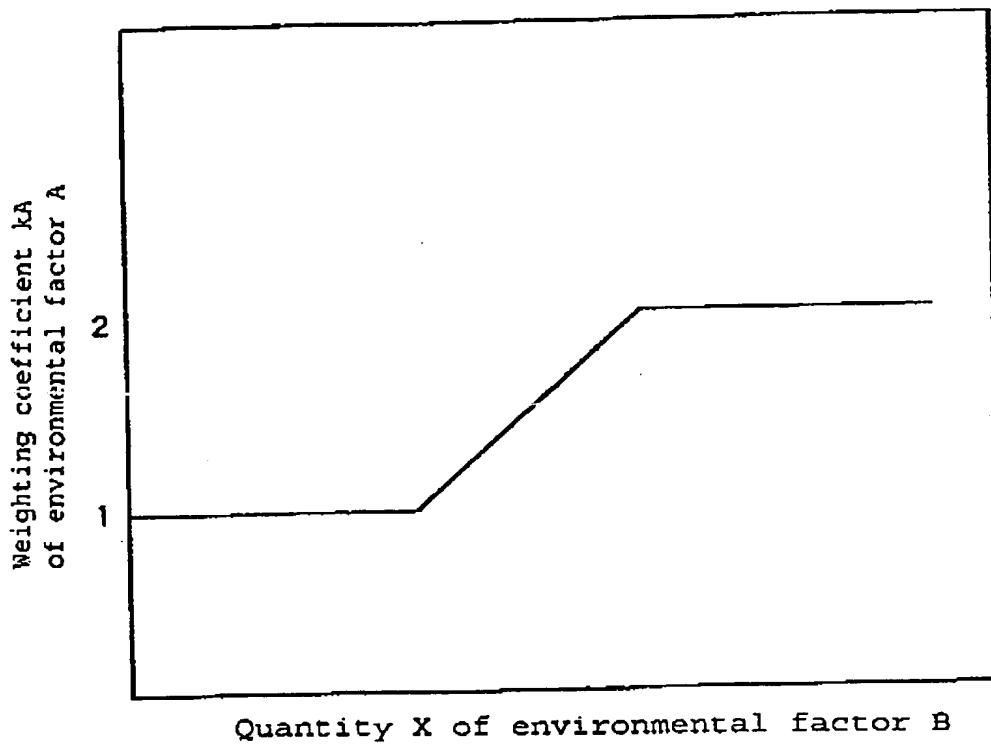


FIG. 6

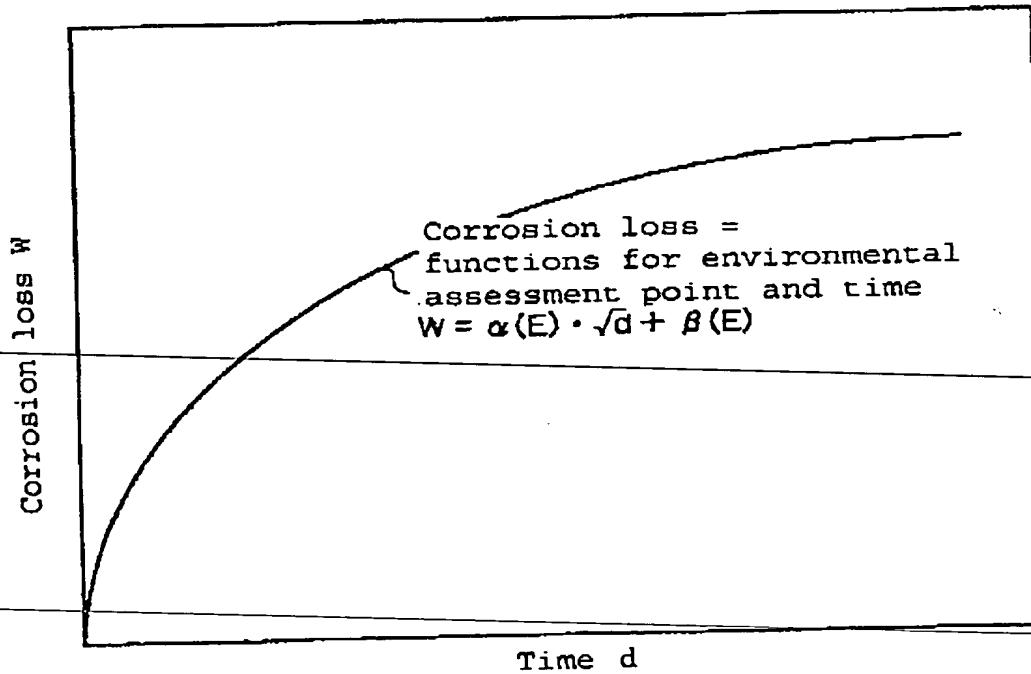


FIG. 7

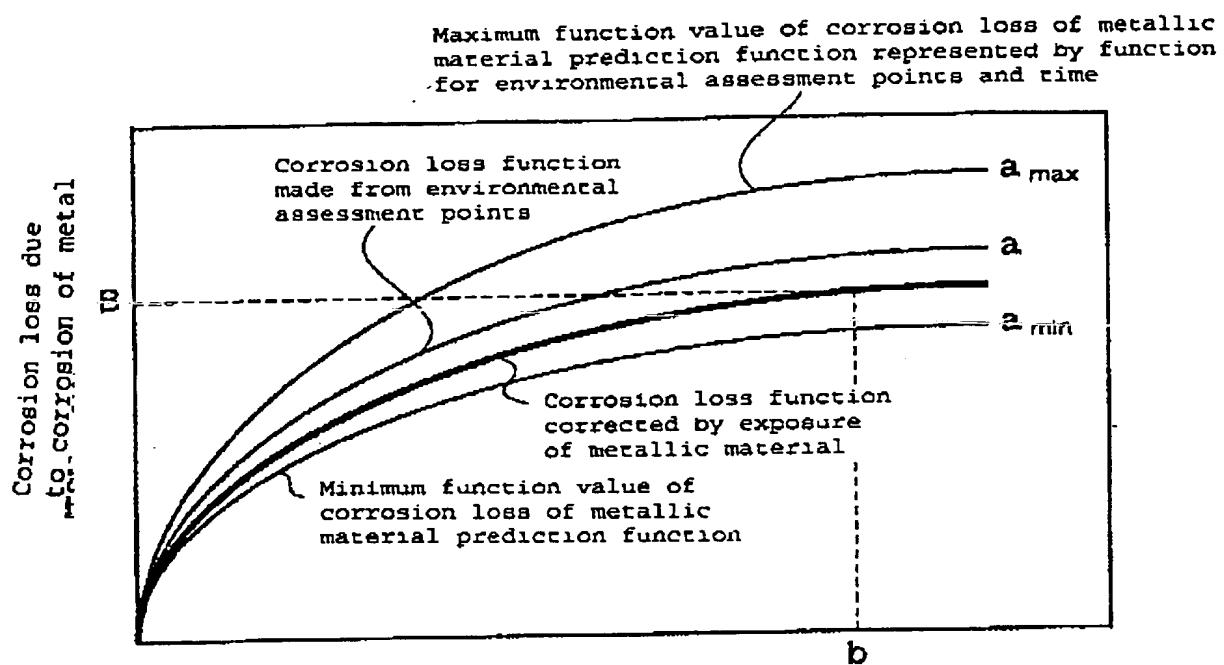


FIG. 8

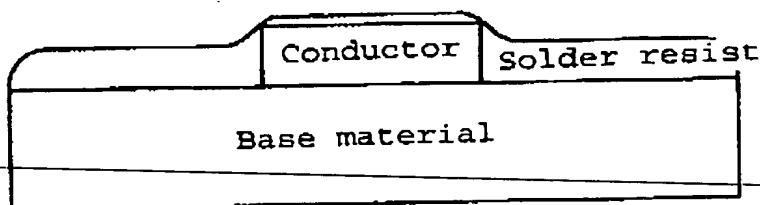
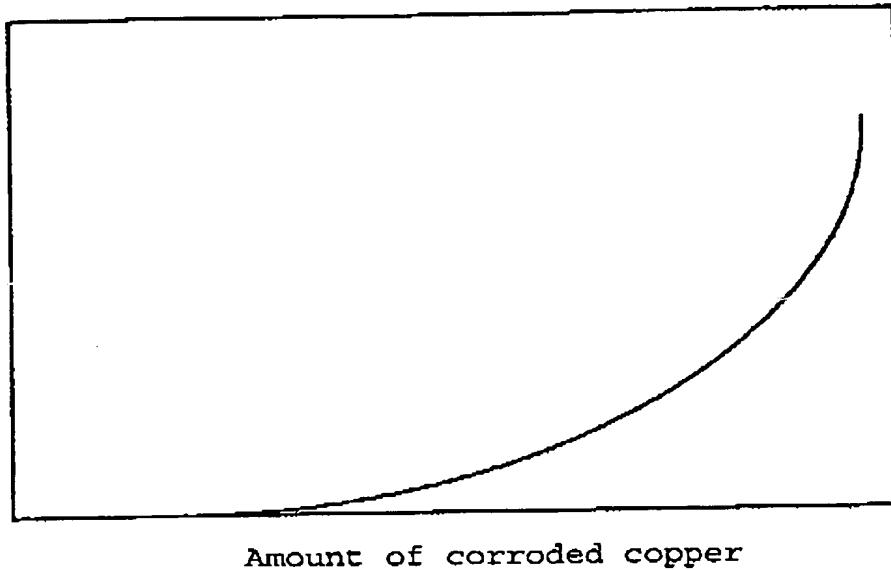


FIG. 9

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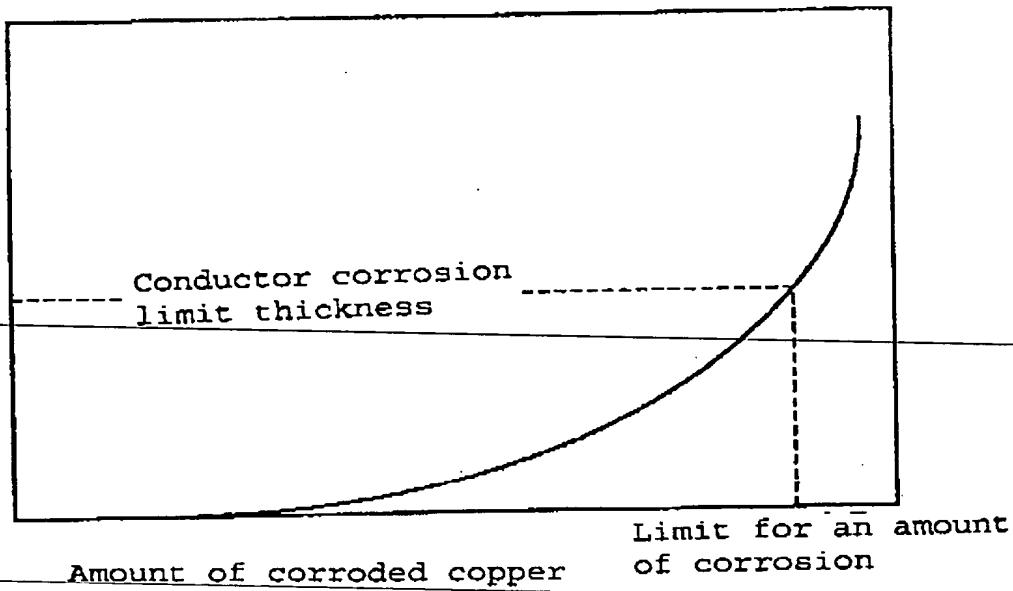
Thickness of corrosion of a conductor



Amount of corroded copper

FIG. 10 A

Thickness of corrosion  
of a conductor

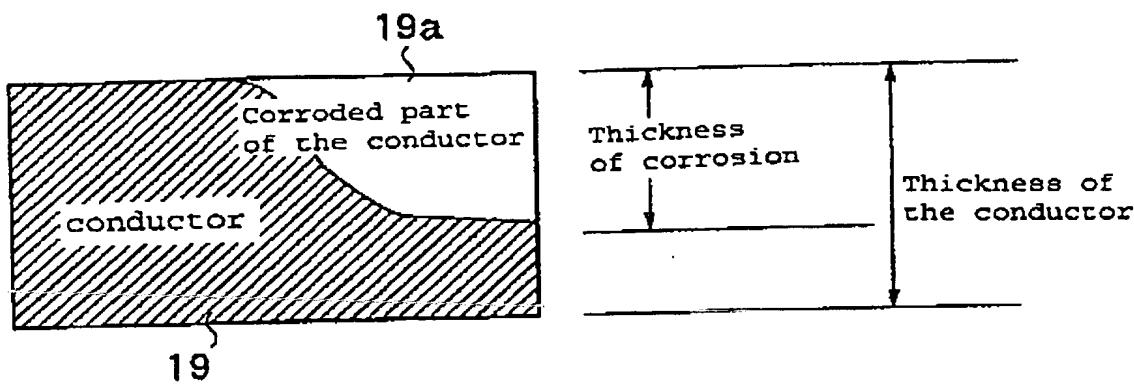


Amount of corroded copper

Limit for an amount  
of corrosion

FIG. 10 B

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Corrosion loss rate = (thickness of corrosion / thickness of the conductor) × 100

FIG. 1 1

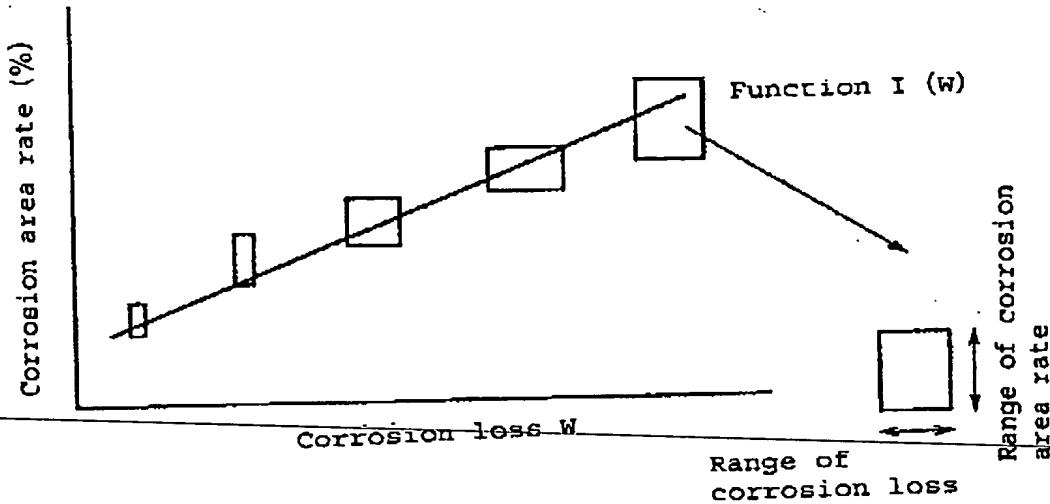


FIG. 1 2

IC type	Year	Manufacturer	Sealing resin	Chip protective film	Other...	Correlation function $I(W)$
IC1	1982	T Inc.	Epoxy blend ---	PSG		$I_1(W)$
IC2	1979	N Inc.	Epoxy blend ---	None		$I_2(W)$
IC3	1992	H Inc.	Polyimide blend ---	SiN		$I_3(W)$
...	...	...	...	...	...	...

FIG. 13

IC type	Year	Manufacturer	Sealing resin	Chip protective film	Other...	Change of time sequence of aluminium wiring corrosion	
						area rate $U_j = h(t)$	Correlation function $R(u)$ of aluminium wiring corrosion area rate and faults
IC1	1982	T Inc.	Epoxy blend - - -	PSG		$U_1 = m_1(t), F_1 = n_1(u)$	
IC2	1979	N Inc.	Epoxy blend - - -	None		$U_2 = m_2(t), F_2 = n_2(u)$	
IC3	1992	H Inc.	Polyimide blend - - -	SiN		$U_3 = m_3(t), F_3 = n_3(u)$	
	...	...	...	...	...	...	...

FIG. 14

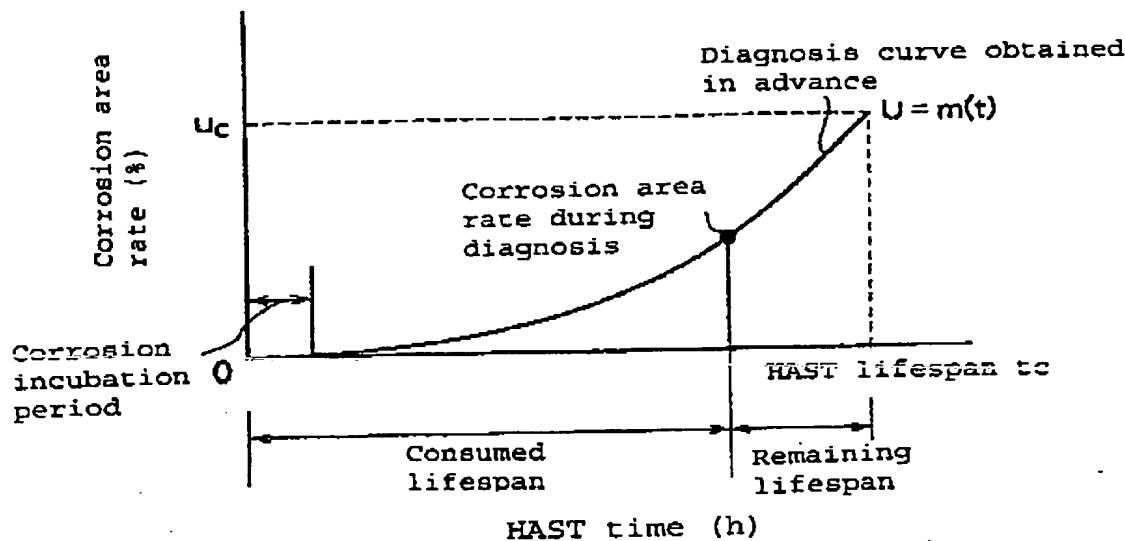


FIG. 15

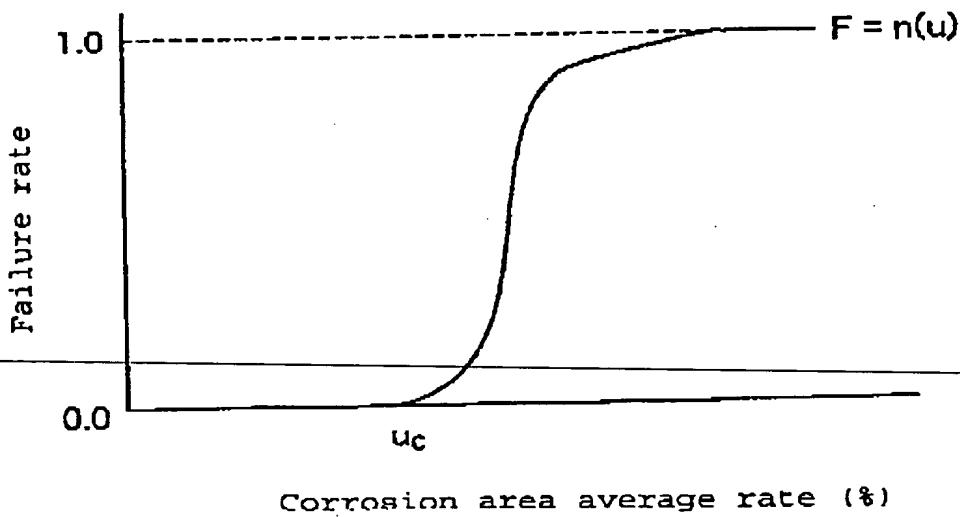


FIG. 16

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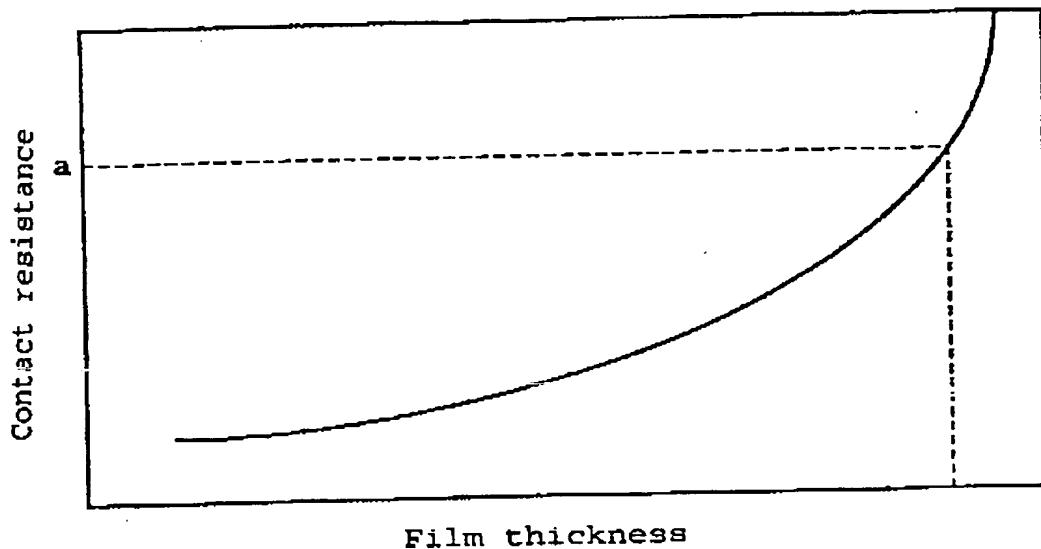


FIG. 17

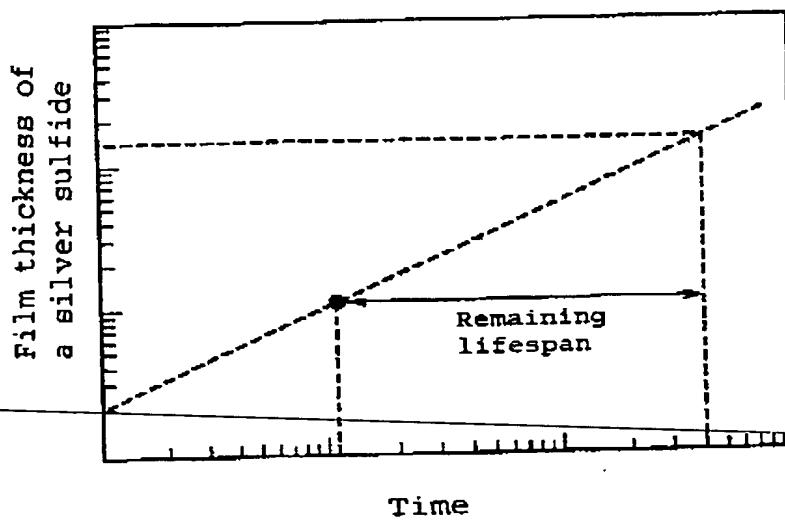


FIG. 18

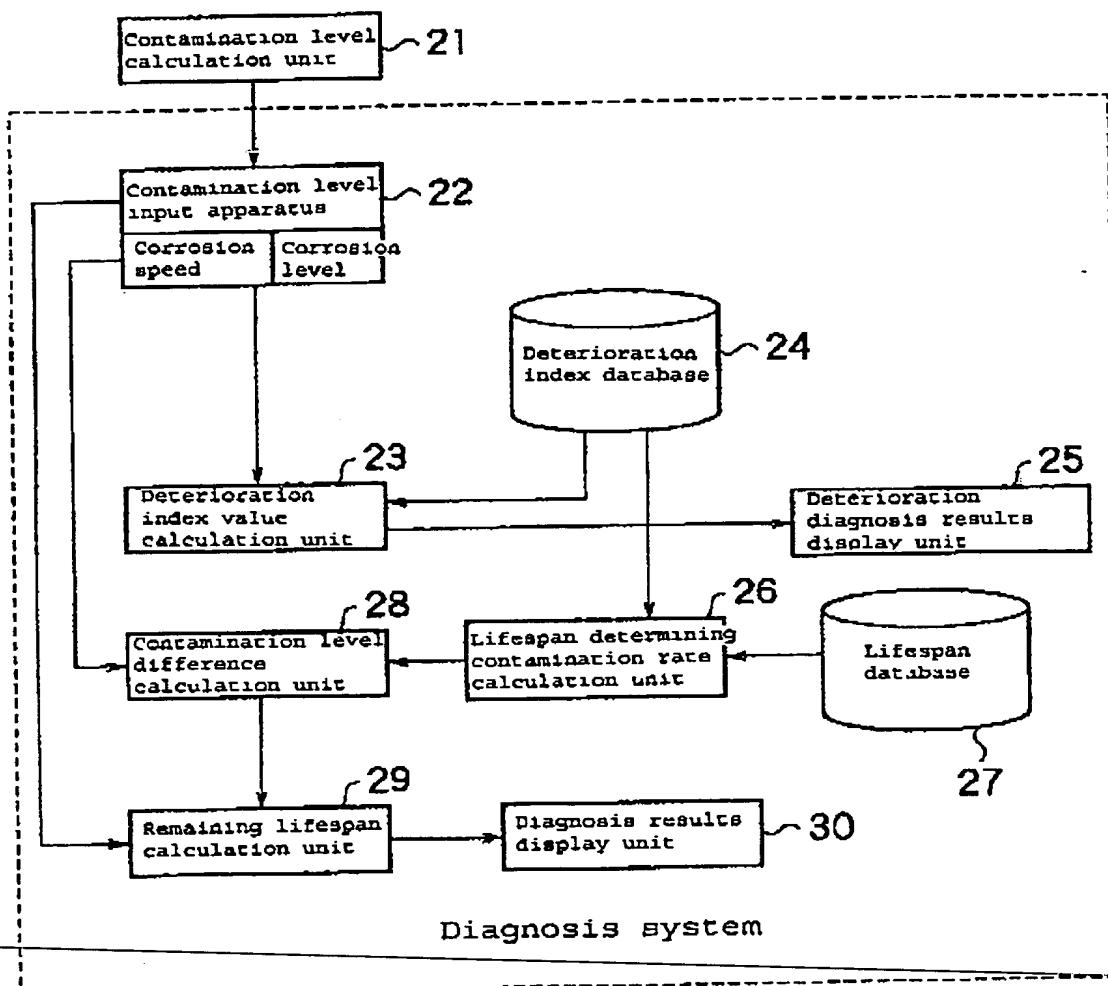


FIG. 19

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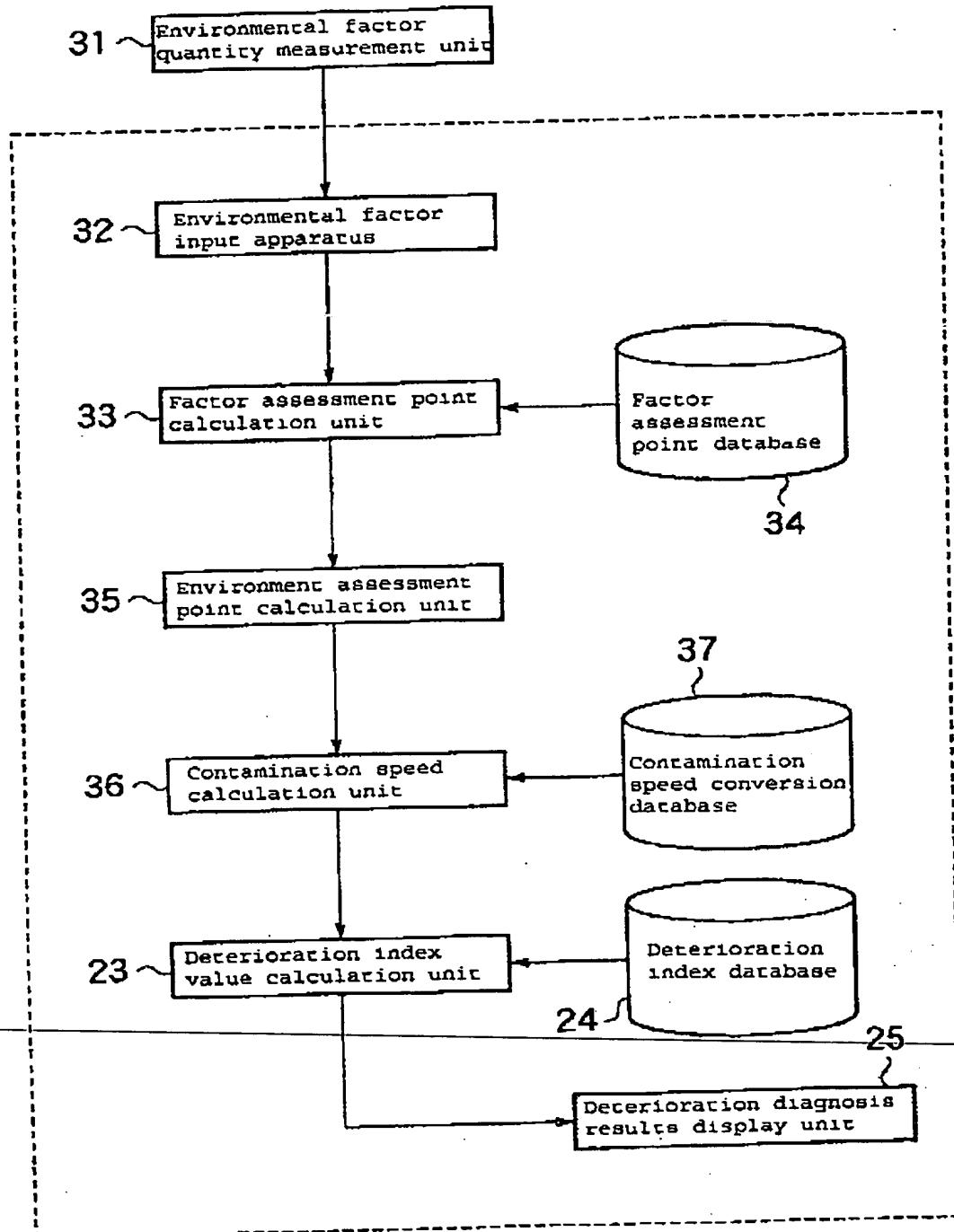


FIG. 20

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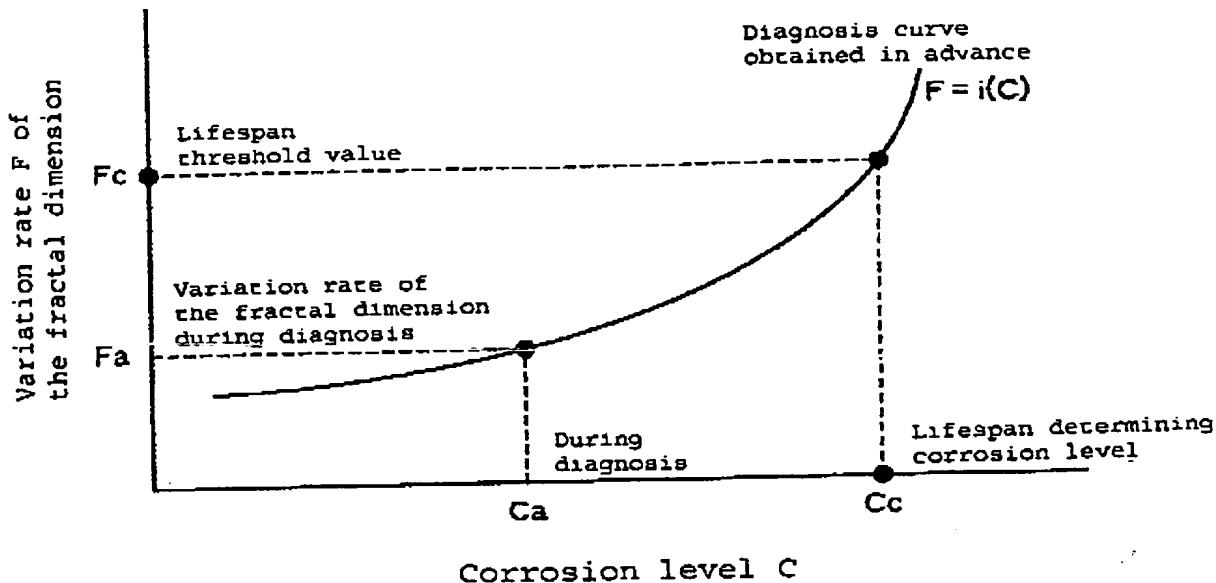


FIG. 2 1

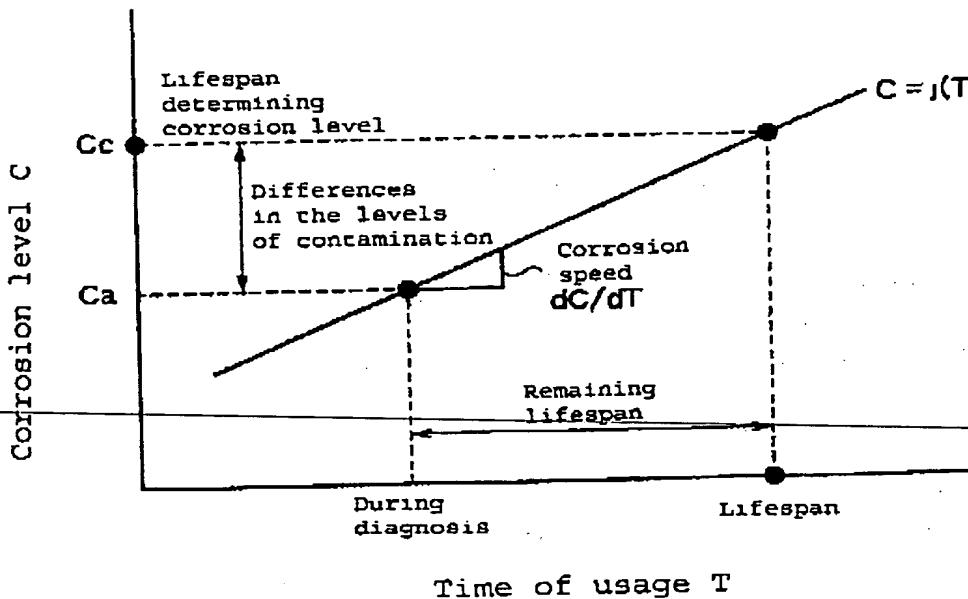


FIG. 2 2

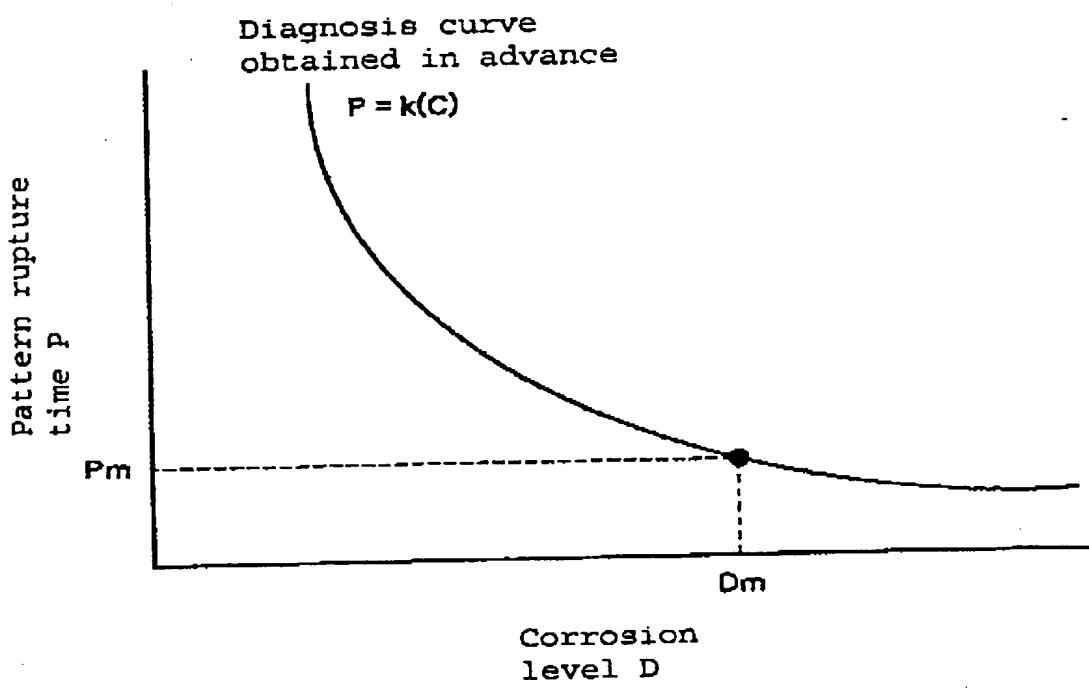


FIG. 23

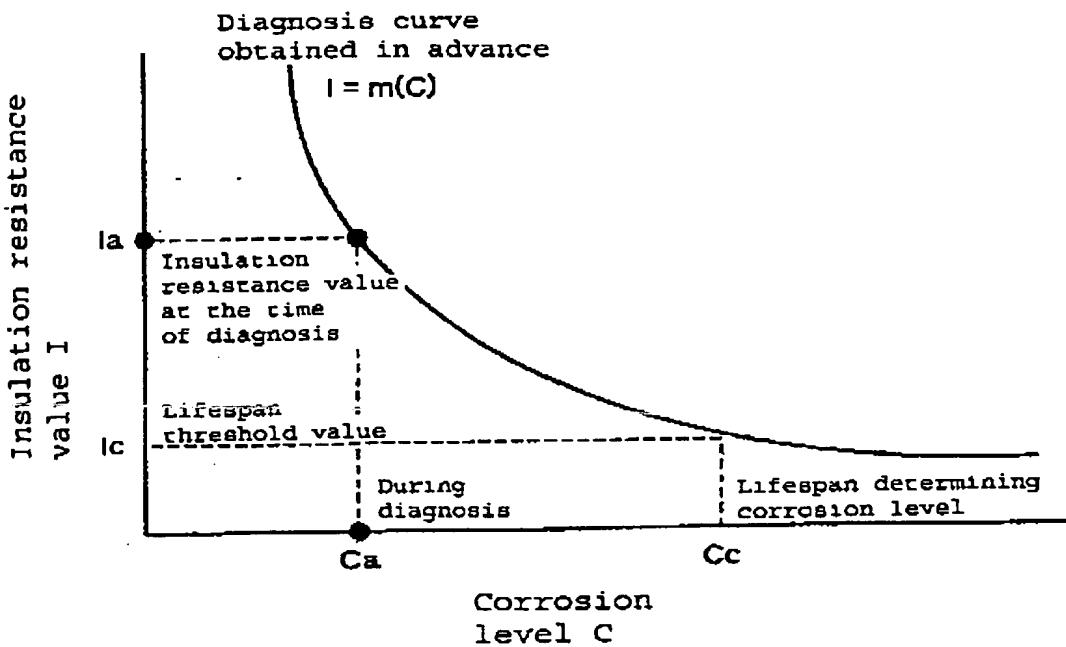


FIG. 2 4

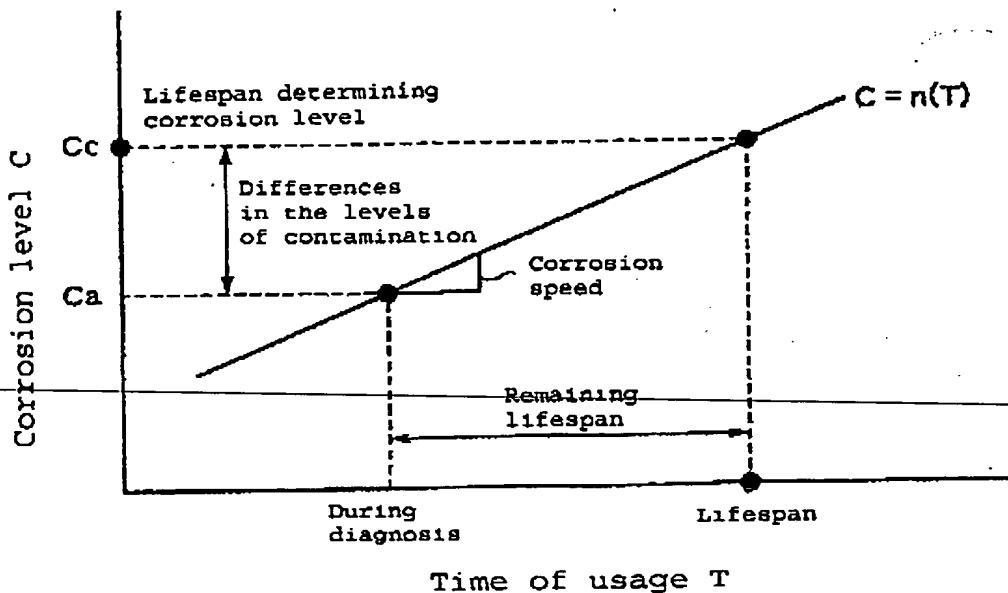


FIG. 2 5